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**United States Patent** [19]

Cuckler et al.

[11] Patent Number: **5,931,870**[45] Date of Patent: **Aug. 3, 1999**[54] **ACETABULAR RING PROSTHESIS WITH REINFORCEMENT BUTTRESS**

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**A61F 2/34; A61F 2/36**

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[58] Field of Search ..... **623/16, 18, 19-23**

[56] **References Cited****U.S. PATENT DOCUMENTS**

5,507,819	4/1996	Wolf	623/19
5,507,833	4/1996	Bohn	623/23
5,549,691	8/1996	Harwin	623/22
5,549,697	8/1996	Caldarise	623/22
5,584,880	12/1996	Martinez	623/4
5,609,646	3/1997	Field et al.	623/22
5,641,323	6/1997	Caldarise	623/22
5,658,338	8/1997	Tullos et al.	623/18
5,658,348	8/1997	Rohr, Jr.	623/22
5,676,704	10/1997	Ries et al.	623/18
5,702,475	12/1997	Zahedi	623/22

5,702,477	12/1997	Capello et al.	623/22
5,702,478	12/1997	Tornier	623/22
5,709,688	1/1998	Salzer	606/81

**FOREIGN PATENT DOCUMENTS**

0 563 503	3/1992	European Pat. Off.	623/22
88 07 947	9/1988	Germany	623/22
WO 94/23670	10/1994	WIPO	A61F 2/34
WO 96/13231	5/1996	WIPO	A61F 2/34

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[57] **ABSTRACT**

A cemented acetabular prosthesis includes a cup body having a relative thin wall (for example, 2 mm). The body has a concave surface, a convex surface, and an annular rim. A plastic liner registers into a concavity of the cup body, the liner having a wall with a liner wall thickness much greater than the cup body wall thickness and a concave surface and a convex surface that registers and fits the concave surface of the cup body. The cup body wall provides a plurality of openings. Some of the openings are bone screw receptive openings that are reinforced with an annular reinforcement that extends away from the convex surface of the cup body. Other openings are unreinforced openings that allow cement to flow from the concave to the convex side of the cup body and into the patient's acetabulum during surgery. The cup body has a peripheral buttress portion for supporting a volume of cement of the cement mantle at a peripheral interface position between the liner and the body.

**46 Claims, 7 Drawing Sheets**